By CAROL S. CARSON

Net Exports of Goods and Services, 1980-82

THE exchange of goods and services between the United States and foreign countries has been strongly affected in recent years by recessions in the United States and abroad; by changes in the value of the dollar relative to foreign currencies; and record high interest rates and financial innovations. Developments are discussed each quarter in the SURVEY OF CURRENT BUSINESS from the perspective of the U.S. international transactions accounts (hereafter called balance of payments accounts, BPA's). This SURVEY, for example, contains a discussion of the fourth quarter and year 1982. The purpose of this article about net exports is to review developments from the perspective of the national income and product accounts (NIPA's). In particular, the review will be in terms of constant-dollar estimates. (Quarterly constant-dollar estimates, expanded two years ago, appear in tables 4.2 and 4.4 in the National Income and Product Accounts Tables.)

The first section of the article provides definitions and a summary methodology. Its primary purpose is to present material that is basic to the use of a set of estimates on which attention has focused recently. A secondary purpose is to facilitate use of both the NIPA's and BPA's by noting the similarities and differences between the parts of the two sets of accounts that cover the same area of economic activity. Because the adjustment for price change is a distinguishing feature of the estimates discussed in this article and because the adjustment is not conceptually clear cut in all cases, let alone statistically perfect, the methodology will emphasize deflation procedures.

The next two sections discuss movements in net exports in 1980-82: the halving of net exports from the first quarter of 1980 to the fourth quarter of 1982, almost all due to a decline in exports; the atypicality of this pattern during an economic downturn; the shift in the composition of net exports away from merchandise and toward factor income, and, within the latter, away from corporate profits and toward interest; and the factors underlying these developments. These factors include the general ones mentioned above and the pervasive influence of petroleum. The discussion begins with an overview of these developments and then proceeds to detail by component.

The last section discusses two supplementary measures of constant-dollar net exports. One, based on an alternative deflation procedure, shows that the quantity of goods and services that the United States can purchase with the proceeds of its exports held up better than did the conventional measure of net exports. The other shows that imports declined much more if expressed in 1981 dollars, rather than in 1972 dollars.

Definitions and methodology

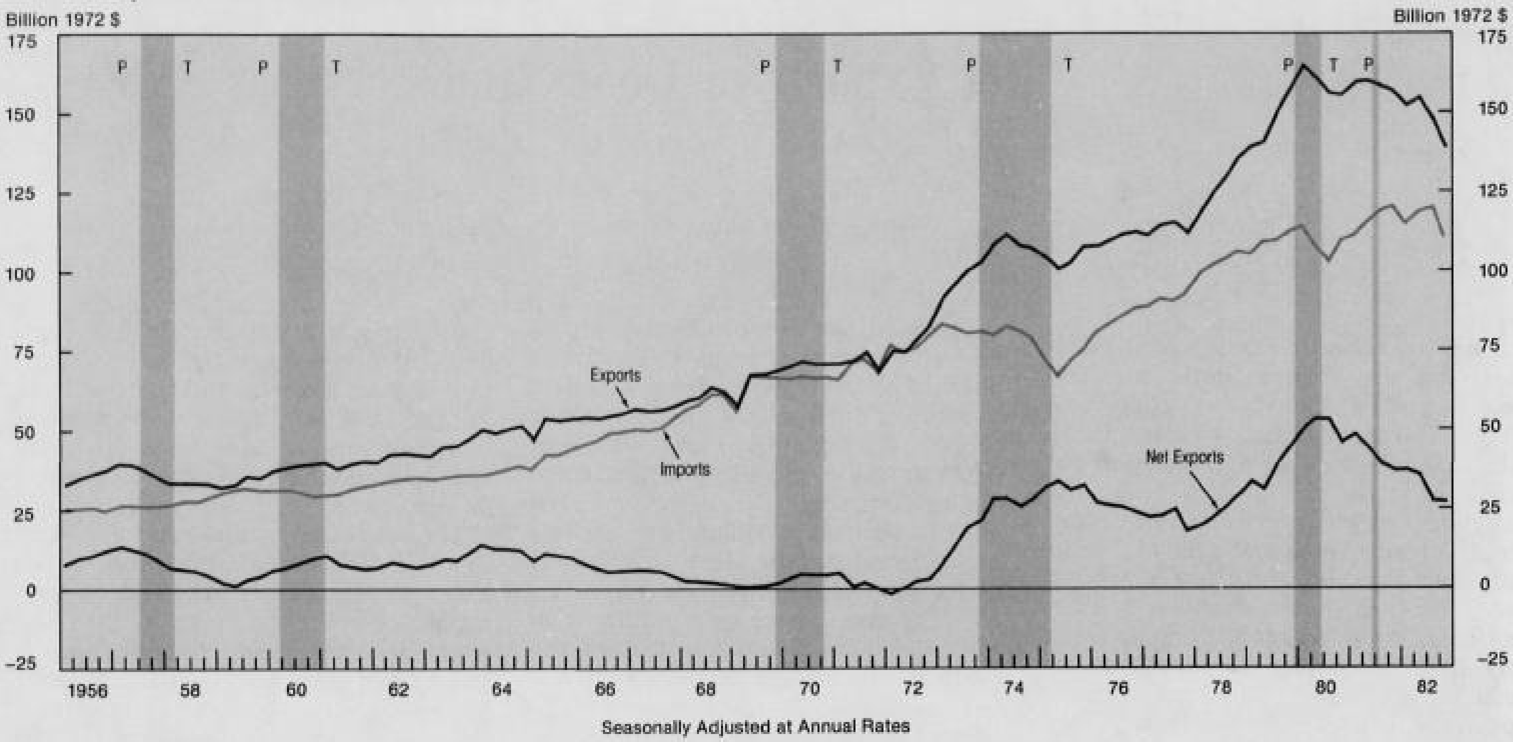
The net exports component of GNP is exports of goods and services from the United States less imports of goods and services into the United States. Goods and services exported are part of U.S. production and thus must be included in accounting for production. Goods and services imported, because they are included in the type-of-purchaser categories (for example, personal consumption expenditures), must be subtracted because they are not part of U.S. production. Conventionally, the subtraction is from exports, and the resulting net measure is of interest, particularly in evaluating aspects of the U.S. economic position relative to that of foreigners.

The net exports measure shown in the NIPA's is related to one of the balances included in the BPA presentations. As shown in table 1 of the Reconciliation and Other Special Tables, on page 18, the BPA balance on goods and services differs from NIPA net exports because: (1) the treatments of nonmonetary gold differ; (2) the NIPA's exclude capital gains net of losses from the income of foreign affiliates of U.S. parent companies and of U.S. affiliates of foreign parent companies; (3) the NIPA's exclude statistical revisions already incorporated in the BPA's; (4) the NIPA's exclude interest paid by the U.S. Government on its liabilities to foreign governments, businesses, and persons (and account for it instead like a transfer payment); and (5) the treatments of unusual transactions may differ. In recent years such unusual transactions, which are shown in the table as "other items," were arms shipments to Israel financed under the Emergency Security Act of 1973 and subsequent legislation. In the BPA's, the shipments are included in exports; in the NIPA's, they are excluded from exports and accounted for instead as government purchases when acquired by the U.S. Government.[1]

1. For a fuller discussion of the reconciliation items, see the note that introduced the reconciliation table: SURVEY OF CURRENT BUSINESS 59 (December 1979): 6.

CHART 6

Net Exports of Goods and Services, 1956-82



Note.—Business cycle peaks (P), and troughs (T), are as designated by the National Bureau of Economic Research, Inc. Shaded areas represent recessions.

U.S. Department of Commerce, Bureau of Economic Analysis

83-3-4

By far the largest of these reconciliation items is the NIPA exclusion of interest paid by the U.S. Government. In recent years, it has increased sharply—from $12.5 billion in 1980 to $18.0 billion in 1982. In that year, it accounted for most of the difference between the BPA balance on goods and services and NIPA net exports; the other items, each $1.5 billion or less, were partially offsetting.

Definitions.—A basic classification within the NIPA estimates of exports and imports is: (1) merchandise, or goods; (2) factor income, or payments for the services of factors of production; and (3) other services. Within the three categories, the content of items is the same, with the exceptions just noted, as that of corresponding BPA items.[2] (See, for example, table 1 of the BPA presentation.)

Merchandise consists of movable goods (other than those associated with transactions of U.S. defense agencies) that are sold, given away, or otherwise transferred from U.S. to foreign or from foreign to U.S. ownership.

Factor income consists of labor and property income, measured as compensation of employees, net interest, and corporate profits. Compensation of employees, which is small and stable enough to be ignored for most purposes, consists of the compensation paid to those crossing the U.S.-Canadian or U.S.-Mexican border to work and to U.S. residents temporarily working abroad and to foreigners temporarily working in the United States. Interest consists of interest flowing between parent businesses and their affiliates, and interest on debt securities, loans, deposits, and other claims. Profits consist of dividends, earnings of unincorporated affiliates, and reinvested earnings of incorporated affiliates.[3]

Other services include a number of items: U.S. Government transactions, largely those of defense agencies; travel expenditures (lodging, food, internal transportation, personal purchases, and related items); passenger fares for ocean and air transportation; other transportation (including freight, port expenditures, and charters and rentals); fees and royalties for use or sale of intangibles such as patents and trademarks, for rental of tangible property, and for certain services rendered; and other private services, such as reinsurance, technical services, and communications.

Usually the content and classifications of exports and imports are symmetrical: A given item appears both as an export and as an import, and is classified in the same way in both

2. The three NIPA categories consist of the following items from BPA table 1: merchandise, lines 2 and 18; factor income, lines 11-15, 27-30, and the small amount of labor compensation in lines 9 and 25; other services, lines 3-10 and 19-26, less the small amounts of labor compensation in lines 9 and 25. (Line 31 is interest paid by the U.S. Government to foreigners, which is excluded from NIPA imports.)

Because of the similarity of content, the line-by-line definitions for BPA table 1 in the "Explanatory Notes" of the June 1978 SURVEY (Part II) can be used for the NIPA items. Also, the BPA service items, which include both NIPA factor income and other services, are described in detail in Anthony J. DiLullo, "Service Transactions in the U.S. International Accounts, 1970-80," SURVEY 61 (November 1981): 29-46.

3. For a discussion of reinvested earnings of incorporated affiliates, which were introduced as a component of rest-of-the-world corporate profits in the comprehensive revision of the NIPA's completed in 1980, see the Special Note "Reinvested Earnings of Incorporated Affiliates in the National Income and Product Accounts," SURVEY 62 (September 1982): 6-7.

cases. For example, travel expenditures appear both as an export and as an import, and are classified as a service in both. As a result, a number of net measures (or balances), calculated as the export less the corresponding import, may be assembled for components of exports and imports. An example of such a balance is that on factor income. This balance is identical to the rest-of-the-world sector in presentations of GNP by sector. In this context, it is the difference between GNP—that is, gross *national* product—and gross *domestic* product, and is of interest in showing the part of national production originating in the rest of the world.[4]

Methodology.—Current-dollar estimates of exports and imports are prepared as part of the BPA's and are incorporated, with the necessary reconciliations, into the NIPA's. For example, the estimates for the fourth quarter of 1982 shown in the National Income and Product Accounts Tables in this issue of the SURVEY are the same as the corresponding estimates that appear in "International Transactions Accounts, Fourth Quarter and Year 1982."[5] (The NIPA current-dollar estimates of net exports in this issue are second-revision estimates for the fourth quarter of 1982. The NIPA estimates that appeared before the BPA estimates became available—the estimates for the fourth quarter that appeared in the January and February issues—were based on incomplete information supplemented by assumptions.)

Constant-dollar estimates—often called "real" or "deflated" estimates—are estimates from which price change has been removed. For these estimates, a component is valued at its price in a valuation (base) year—at present, the year 1972, and hence the expression "1972 dollars." Statistically, most constant-dollar estimates are obtained by dividing detailed current-dollar components by appropriate price indexes, with 1972=100.

Table 1.—Net exports in Constant Dollars

[Billions of 1972 dollars; seasonally adjusted at annual rates]

	Net Exports (2) less (3), or (4) plus (5) plus (6)	Exports	Imports	Balances		
				Merchandise	Factor income	Other services
	(1)	(2)	(3)	(4)	(5)	(6)
1977: I	22.3	111.0	88.7	1.8	17.1	3.4
II	22.6	113.9	91.3	1.4	17.1	4.1
III	24.9	115.2	90.3	2.5	17.5	4.9
IV	18.1	111.4	93.2	−2.6	16.0	4.6
1978: I	19.1	118.1	99.0	−5.9	19.0	6.0
II	22.4	124.3	101.9	.3	17.6	4.5
III	25.3	128.8	103.5	2.1	19.5	3.7
IV	29.3	135.5	106.2	2.7	22.2	4.4
1979: I	33.4	138.8	105.4	6.0	23.2	4.2
II	31.5	140.4	109.0	2.8	25.1	3.6
III	39.8	149.2	109.4	7.4	28.5	3.8
IV	44.2	156.4	112.2	11.5	28.3	4.4
1980: I	50.5	164.4	113.9	16.6	28.6	5.3
II	53.2	161.2	108.0	19.9	26.9	6.4
III	53.1	155.9	102.8	20.9	25.7	6.5
IV	45.6	155.1	109.4	17.0	23.4	5.1
1981: I	48.2	159.3	111.1	18.2	25.0	5.0
II	44.2	159.7	115.5	14.1	24.4	5.7
III	39.2	157.9	118.7	6.7	25.6	7.0
IV	36.5	158.9	122.4	3.8	26.7	6.0
1982: I	36.9	151.6	114.7	7.3	22.7	6.9
II	35.7	154.4	118.7	4.9	24.2	6.6
III	27.5	147.5	120.0	−2.4	22.5	7.3
IV	27.3	138.8	111.5	−2.8	23.4	6.5
Addendum: Change, 1980: I to 1982: IV	−23.2	−25.6	−2.4	−19.4	−5.2	1.2

NOTE.—Estimates are from table 4.2 of the National Income and Product Accounts Tables.

The constant-dollar estimates of net exports, although improved in a number of ways in recent years, are not fully satisfactory because of inadequacies in the underlying price information. Constant-dollar estimates of exports and of imports are prepared separately for merchandise, factor income, and, for annual estimates, five types of services. The estimates of exports and imports are summed and constant-dollar net exports are derived as exports less imports.

For *merchandise*, current-dollar estimates are based on administrative records filed as goods leave or enter the country. Constant-dollar estimates for exports and for imports are prepared, by end-use category, by dividing the current-dollar estimates by corresponding unit-value indexes; the resulting quotients are summed to obtain total exports and imports of merchandise. The unit-value indexes are not strictly appropriate for this use, because they are not true price indexes—they are obtained by dividing the total value of a commodity exported or imported by the number of physical units, rather than by specification pricing—and because detailed indexes are not combined in a wholly appropriate way. (BEA has underway a project to improve the deflation of merchandise that involves the substitution of price indexes developed by the Bureau of Labor Statistics for the unit-value indexes.)

For *factor income*, the current-dollar estimates are based, for direct investment income, largely on reports by those in the United States involved in such investment (major U.S. direct investors reporting on their affiliates and major U.S. affiliates of foreign direct investors reporting on themselves) and, for portfolio investment, on representative asset yields in combination with outstanding positions.[6] The totals of both factor income received and factor income paid are divided by the implicit price deflator for net domestic product to obtain constant-dollar estimates. Lack of detailed price data necessitates the use of such a broad domestic price measure, but its use is consistent with the basic concepts of measuring factor income.[7]

4. For definitions of "national" and "domestic," and of others such as "gross" and "net," see "The National Income and Product Accounts of the United States: An Overview," SURVEY 61 (February 1981): 28–34.

5. For the sources and methods from which the current-dollar estimates are derived, reference can be made to BPA documentation. See the "Explanatory Notes," SURVEY 58 (June 1978, Part II): 8–15 and 48, for a summary methodology.

6. Direct investment and portfolio investment are classifications based on extent of ownership by a foreign resident in the case of investment in the United States and by a U.S. resident in the case of investment abroad—10 percent or more for direct, less than 10 percent for portfolio.

7. For a detailed discussion of the deflation of factor income as well as a description and evaluation of deflation of the other components of net exports, see Edward F. Denison, "International Transactions in Measures of the Nation's Production," SURVEY 61 (May 1981): 22–28.

401-030 O - 83 - 5

Within *other services*, current-dollar estimates of U.S. government transactions, largely transfers under U.S. military sales contracts and direct defense expenditures abroad, are based mainly on reports from the Department of Defense. The transfers, which are exports, are deflated by type of product using implicit price deflators prepared for the national defense purchases component of government purchases, and the direct defense expenditures, which are imports, are deflated by the national defense deflators and foreign consumer price indexes. Travel expenditures, based on data on number of travelers and average expenditures, are deflated by consumer price indexes for the countries in which the goods were purchased. Passenger fares, based on the number of travelers and average round-trip fares, are deflated by price indexes derived from information on average fares as reported by travelers and published fares. For other transportation, freight charges and port expenditures in a base year are moved by volume indexes. For the remaining services, no directly relevant price information is available; they are deflated by the implicit price deflator for gross domestic product because they closely resemble factor services.

As noted earlier, the preparation of the constant-dollar estimates for the other services category in this detail is for annual estimates. For current quarters, constant-dollar estimates are prepared only for the total, using an extrapolation of the implicit price deflator for the total.

1980–82: An Overview

From early 1980 to the end of 1982, constant-dollar net exports plummeted (chart 6 and table 1).[3] Technically, a peak was reached in the second quarter of 1980, at $53.2 billion. (The third quarter, $0.1 billion lower, was, given measurement error, the same.) However, the first quarter, when net exports were $50.5 billion, will be used as the initial period for comparisons, for two reasons. First, both exports and imports, after trending up, reversed direction in that quarter. Second, the U.S. economy, as measured by real GNP, was at a peak in that quarter. After mid-1980, net exports turned down (with only two one-quarter interruptions), reaching $27.2 billion in the fourth quarter of 1982—a drop of almost one-half over 3 years.

Exports, at $164.4 billion in the first quarter of 1980, declined to $155.1 billion by the end of that year, increased to a quarterly average of $159.5 billion in the first half of 1981, and then declined steadily (except in the second quarter of 1982) to $138.8 in the fourth quarter of 1982. Over the 3 years, the decline was $25.6 billion and more than accounted for the decline in net exports. Imports, at $113.9 billion in the first quarter of 1980, declined to $102.8 billion in the third quarter, and then resumed an uptrend, reaching $120.4 billion in the fourth quarter of 1981. In 1982, imports dropped about $6 billion in the first quarter, recovered that amount over the second and third quarters, and then declined $8.4 billion in the fourth quarter to $111.6 billion. Over the 3 years, imports were down $2.3 billion.

If 1980–82 is treated as a single economic downturn, as may be argued is reasonable because real GNP in the fourth quarter of 1982 remained well below its 1980 peak, the direction of these changes is atypical. Usually, net exports have increased during downturns, as exports increased and imports decreased. As shown in table 2, this was the pattern of the downturns of the 1960's and 1970's. The 1980–82 decline in net exports was $2.1 billion per quarter, in contrast to an increase of $1.8 billion in the three preceding downturns. Exports and, to a smaller extent, imports contributed to the atypical pattern: exports registered a decline of $2.3 billion per quarter, in contrast to a $0.6 billion increase; imports registered a small decline ($0.2 billion per quarter), in contrast to a $1.2 billion decline.

The table also shows two subperiods that are usually designated recessions. In the two-quarter recession of 1980, exports—rather than increasing—declined sharply. Imports declined, and even more sharply, so that the net increased. For the recession that began in the third quarter of 1981, exports again declined sharply, but this time far more than imports,

Table 2.—Net Exports in Cyclical Downturns, 1960–82

[Billions of 1972 dollars; seasonally adjusted at annual rates]

Quarters of peaks and troughs in real GNP	GNP	Net exports	Exports	Imports	Balances: Merchandise	Balances: Factor income	Balances: Other services
1960: I	740.7	6.0	37.3	31.3	4.9	5.1	−4.0
1960: IV	732.1	9.8	39.2	29.4	8.1	5.4	−3.7
Change	−8.6	3.8	1.9	−1.9	3.2	.3	.3
Change per quarter	−2.9	1.3	.6	−.6	1.1	.1	.1
1969: III	1,092.0	.2	67.2	67.0	−3.4	7.7	−4.1
1970: I[1]	1,081.4	3.2	69.4	66.2	−.4	7.9	−4.3
Change	−10.6	3.0	2.2	−.8	3.0	.2	−.2
Change per quarter	−5.3	1.5	1.1	−.4	1.5	.1	−.1
1973: IV	1,267.0	21.2	102.4	81.2	5.2	16.8	−.8
1975: I	1,206.3	32.1	104.0	71.9	16.1	13.4	2.6
Change	−60.7	10.9	1.6	−9.3	10.9	−3.4	3.4
Change per quarter	−12.1	2.1	.3	−1.8	2.2	−.7	.7
1980: I	1,494.9	50.5	164.4	113.9	16.6	28.6	5.3
1980: III	1,463.8	53.1	155.9	102.8	20.9	25.7	6.5
Change	−31.1	2.6	−8.5	−11.1	4.3	−2.9	1.2
Change per quarter	−15.6	1.3	−4.3	−5.6	2.2	−1.5	.6
1981: III	1,510.4	39.2	157.8	118.7	6.7	25.5	7.0
1982: IV[2]	1,477.2	27.2	138.8	111.6	−2.8	23.4	6.5
Change	−33.2	−12.0	−19.0	−7.1	−9.5	−2.1	−.5
Change per quarter	−6.6	−2.4	−3.8	−1.4	−1.9	−.4	−.1
Addenda:							
1980: I	1,494.9	50.5	164.4	113.9	16.6	28.6	5.3
1982: IV[2]	1,477.2	27.2	138.8	111.6	−2.8	23.4	6.5
Change	−17.7	−23.3	−25.6	−2.3	−19.4	−5.2	1.2
Change per quarter	−1.6	−2.1	−2.3	−.2	−1.8	−.5	.1
Change per quarter for 1960, 1969–70, and 1973–75	−8.0	1.8	.6	−1.2	1.7	−.2	.3

1. Use of the fourth quarter of 1970 as the trough, when real GNP, after increasing in the second and third quarters, declined to $1,084.7 billion, does not significantly affect the results.
2. Latest quarter available.

3. Hereafter, reference will be to estimates in constant (1972) dollars unless otherwise noted. Quarterly estimates are at seasonally adjusted annual rates, and changes in them are differences between those rates.

so that the net, too, declined—$12.0 billion over the next five quarters.

An approximate measure of the effect on the rate of change in GNP of disproportionate changes in net exports is obtained by comparing rates of change of GNP—referred to as gross national product in this section to emphasize its nature—and gross domestic purchases. The latter is a measure of purchases within the boundaries of the United States and is equal to gross national product less exports plus imports—in other words, it differs from gross national product by the amount of net exports. (Gross domestic purchases—dollar amounts and percent change from the preceding period—are shown in tables 1.3–1.4 and 8.1 in the National Income and Product Accounts Tables.) As shown in column 4 of table 3, in all except two quarters in 1980–82, the disproportionate changes in net exports reduced the rate of increase or added to the rate of decline in gross national product. In two quarters, those when the difference between the annual rates of increase exceeded 2 percentage points, the effect was substantial. Over the period as a whole, gross national product declined at an average annual rate of 0.4 percent and gross domestic purchases increased at an average annual rate of 0.1 percent. The difference between the two rates indicates that net exports reduced the average annual rate of increase in gross national product by approximately 0.5 percentage points over the period.

Another way of accounting for the decline in net exports is in terms of three balances (table 1). The merchandise balance accounted for about four-fifths of the decline from the first quarter of 1980—$19.4 billion of the $23.3 billion. The factor-income balance, down $5.2 billion, accounted for about one-fifth. The balance on other services was up, about $1 billion.

The composition of net exports in terms of these balances can be thought of as weights helping to assess the importance of the several factors influencing net exports at a point of time. As will be brought out in the discussion that follows, the balances are affected by different factors or, if by the same factors, to different extents and in differing ways. The composition of net exports in terms of these balances shifted sharply over the period, as shown in the accompanying tabulation. The balance on merchandise accounted for 33 percent of net exports in the first quarter of 1980. By the fourth quarter of 1982, the balance was negative, −$2.8 billion, within net exports of $27.2 billion. In recessions the percentage of net exports accounted for by this balance has usually increased, rather than declined. The decline is consistent, however, with a trend: After each cyclical increase over the last 20 years (except around 1970, when the balance was negative), the percentage was lower than after the preceding one, falling from 80 percent in 1961 to 50 percent in 1975. The offsetting increase was shared by the balances on factor income and other services. The percent accounted for by the balance on factor income increased from 57 percent to 86 percent in the fourth quarter of 1982, when the balance was $23.4 billion. This percentage has declined in recessions, but has not shown a trend. The balance of other services, which had generally been negative until 1974, accounted for about 10 percent of net exports in the first quarter of 1980. By the fourth quarter of 1982, when it was $6.5 billion, it accounted for about 25 percent.

	Percent of net exports accounted for by the balance on:		
	Merchandise	Factor income	Other services
1980: I	33	57	10
1982: IV	−10	86	24

Table 3.—Rates of Change in Selected Aggregates

[Percent change from preceding quarter; based on constant (1972) dollars at seasonally adjusted annual rates]

	Gross national product (1)	Gross domestic purchases [1] (2)	Gross domestic product [2] (3)	Differences: (1) less (2) (4)	Differences: (1) less (3) (5)
1980: II	−9.6	−10.6	9.3	1.0	−0.3
III	1.6	1.7	2.0	−.1	−.4
IV	4.3	6.7	5.1	−2.4	−.8
1981: I	7.9	7.4	7.6	−.5	.3
II	−1.5	−.4	−1.3	−.4	−.2
III	2.2	3.7	2.0	−1.5	.2
IV	−5.3	−4.7	−5.7	−.6	.4
1982: I	−5.1	−5.3	−4.1	.2	−1.0
II	2.1	2.5	1.7	−.4	.4
III	.7	3.1	1.2	−2.4	−.5
IV	−1.1	−1.0	−1.3	−.1	.2
Addendum: Average annual rate of change, 1980: I to 1982: IV	−.4	.1	−.3	−.5	−.1

1. Gross national product less exports of goods and services plus imports of goods and services.
2. Gross national product less product originating in the rest of the world.

NOTE.—Estimates are from table 8.1 of the National Income and Product Accounts Tables.

1980–82: Detail

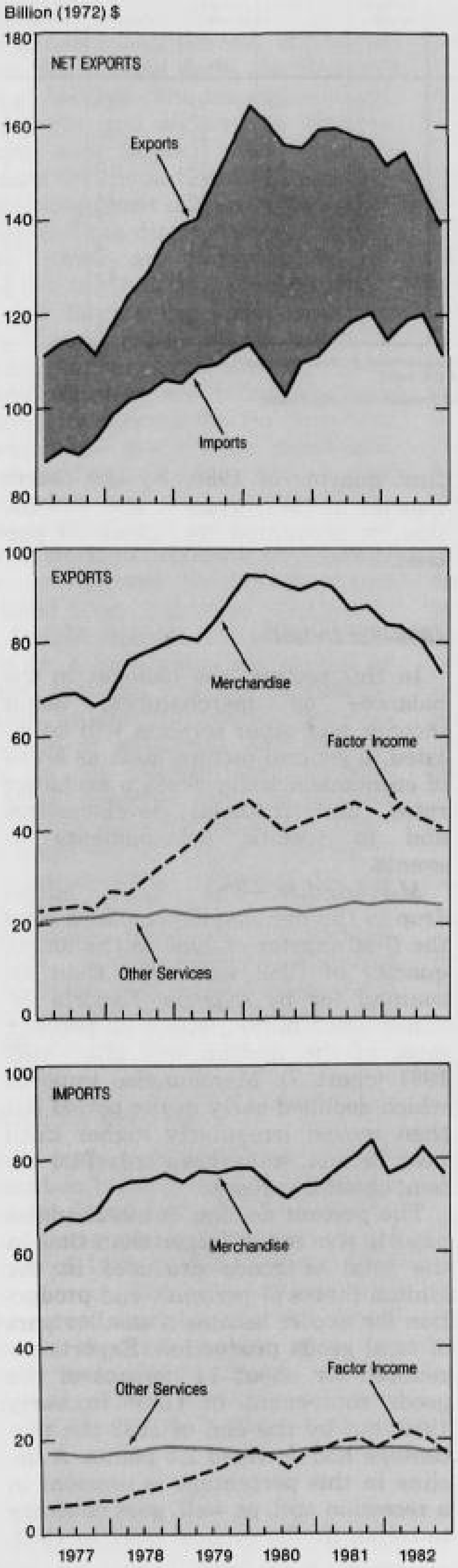
In this section, the changes in the balances on merchandise, factor income, and other services will be related to general factors, such as levels of economic activity, foreign exchange rates, and financial developments, and to specific developments or events.

Merchandise.—The $19.4 billion drop in the merchandise balance from the first quarter of 1980 to the fourth quarter of 1982 was more than accounted for by exports. Exports declined $20.7 billion, about 22 percent; most of the decline was after mid-1981 (chart 7). Merchandise imports, which declined early in the period but then moved irregularly higher until near its end, were down only $1.3 billion, about 2 percent.

The percent decline in merchandise exports was much larger than that in the total of goods produced in the United States (4 percent), and production for export became a smaller part of total goods production. Exports accounted for about 14 percent of the goods component of GNP in early 1980, but by the end of 1982 the percentage had declined 2.5 points. A decline in this percentage is unusual in a recession and, as well, goes contrary to trend. At the cyclical peak in 1960,

CHART 7

Net Exports of Goods and Services



Seasonally Adjusted at Annual Rates

U.S. Department of Commerce, Bureau of Economic Analysis

83-3-7

exports accounted for only about 7 percent of GNP goods, and there has been a fairly steady uptrend since. In contrast, the percent decline in imports was only slightly larger than that in the total of goods purchased in the United States (1 percent). Import penetration was about the same in the fourth quarter of 1982 as in the first quarter of 1980, when it was 11.6 percent. This percentage also is about double the percentage at the peak in 1960.

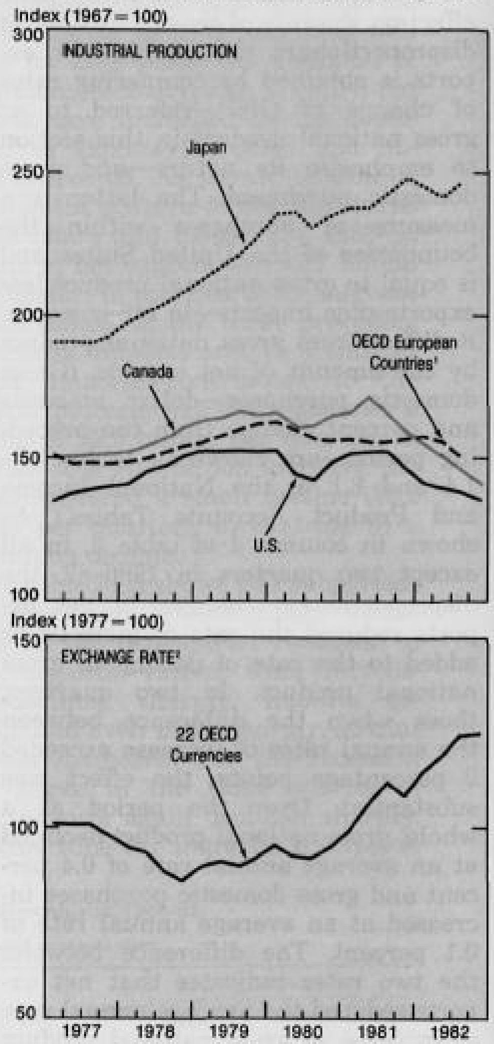
As will be seen, recessions here and abroad and changes in the value of the dollar relative to other currencies were major factors affecting merchandise. As shown in the lower panel of chart 8, the dollar had depreciated during the late 1970's, with the result that U.S. merchandise became progressively less expensive to foreigners and foreign merchandise became more expensive to Americans. Beginning in late 1980, the dollar appreciated strongly (except in late 1981) through the end of 1982. Against the currencies of 22 countries of the Organization for Economic Cooperation and Development (OECD), on a trade-weighted basis, the dollar appreciated almost 36 percent from the third quarter of 1980 to the fourth quarter of 1982. As a result, U.S. merchandise became more expensive and foreign goods less expensive.

The resulting tendency for exports to decline, with some lag, was compounded by the effect of depressed or declining levels of economic activity of U.S. trading partners. As shown in the upper panel of chart 8, industrial production in Japan and Canada turned down in mid-1980, recovered modestly, and turned down again in 1982, and in European OECD countries, after a peak early in 1980, declined and remained depressed. The effect on imports of the U.S. recessions countered the tendency of imports to increase—again with a lag—due to the dollar's appreciation. The uptrend in imports was interrupted during the brief but sharp recession in 1980 and the sharper and more prolonged one in 1981–82.

Chart 9 shows exports by end-use category. Each of the six categories declined from the first quarter of 1980 to the fourth quarter of 1982, by amounts ranging from about 10 to 40 percent. The decline in capital goods,

CHART 8

Selected Factors Affecting Net Exports



Seasonally Adjusted at Annual Rates

1. OECD is Organization for Economic Cooperation and Development.
2. Trade-weighted average index of foreign currency price of the U.S. dollar.

Data: Federal Reserve Board, OECD, Statistics Canada, and Ministry of International Trade and Industry (Japan).

U.S. Department of Commerce, Bureau of Economic Analysis

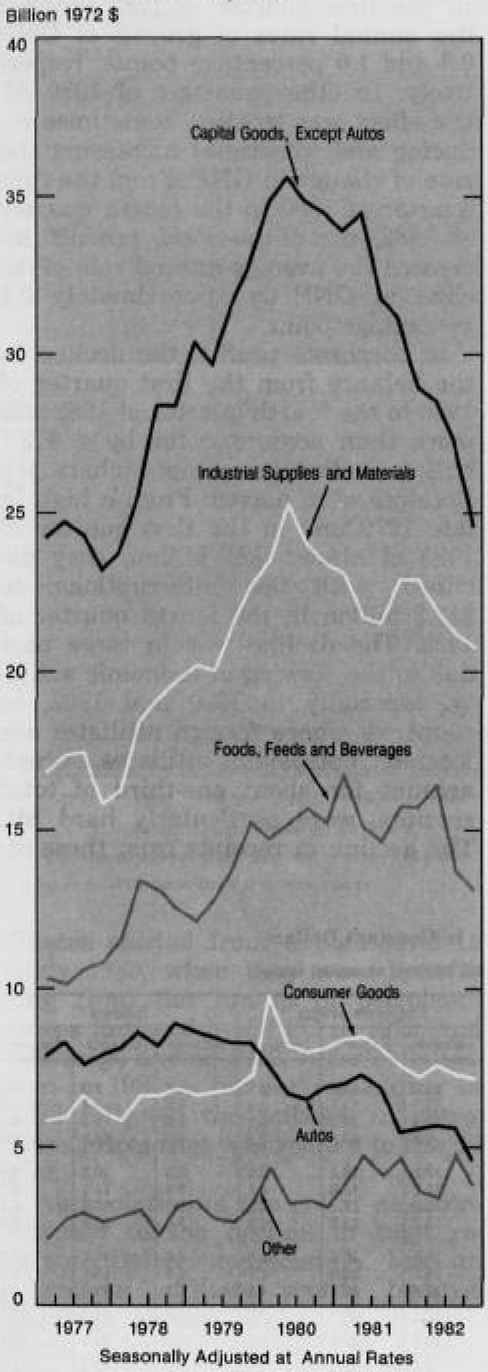
83-3-8

except automotive, was the largest decline in dollars—$10.2 billion, one-half of the total decline—and among the sharpest in percentage terms (29 percent). Reduced investment activity, first in Europe and more recently in developing countries, and the effect of the dollar's appreciation on price competitiveness were factors. Further, aircraft shipments, which had been well-maintained through mid-1981 as foreign fleets were being rebuilt, dropped sharply thereafter and accounted for a sizable part of the total decline.

Automotive exports were down $3.1 billion (41 percent). Exports of cars

CHART 9

Merchandise Exports



U.S. Department of Commerce, Bureau of Economic Analysis 83-3-9

and trucks to Canada, which account for the bulk of exports of finished vehicles, were affected by the Canadian recessions. Exports of parts to Canada, a substantial part of which are for assembly in Canada and return to the United States as finished vehicles, reflected the weakness of the auto markets in both countries in 1982.

Industrial supplies and materials, down $2.8 billion (12 percent), also showed sensitivity to economic conditions abroad and the dollars' value—the potential effect of the latter underscored by the homogeneity of many commodities in this category. Among them, exports of iron and steel products and steel-making materials and of nonferrous metals fell in 1982. The fall in steel products also reflected a worldwide slowing in oil well drilling. In contrast, energy exports—petroleum and petroleum products as well as coal—were up. Exports of petroleum products stepped up following removal of export restrictions in March 1981.

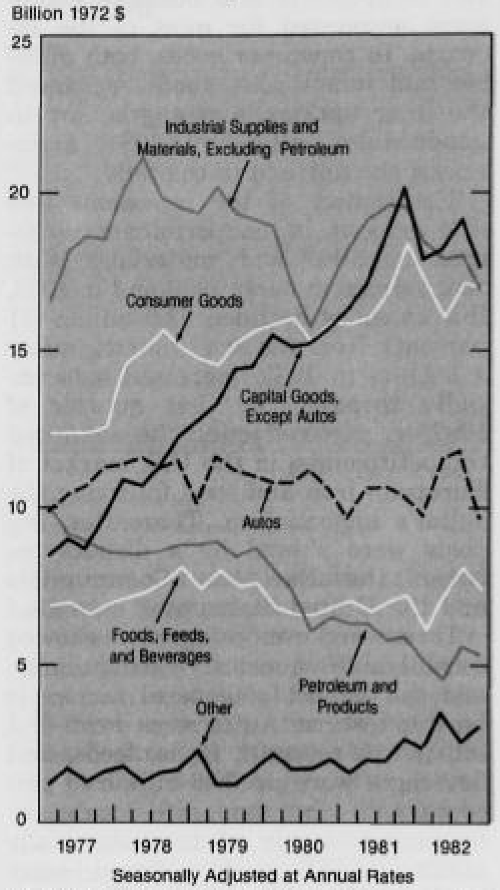
Consumer goods were down $2.4 billion (25 percent). The decline was in durable goods; after a spike in the first quarter of 1980 due to numismatic coins, they declined steadily; nondurable goods, although registering the impact of recession abroad, changed little. The smallest percentage decline among end-use categories was in foods, feeds, and beverages, down $1.6 billion (11 percent). Part of the decline can be traced to the embarbo on shipments to the Soviet Union imposed in January 1980—shipments of corn, wheat, and soybeans in 1980 were less than one-third their 1979 volume—and the strained trade relations thereafter that led the Soviet Union to limit its purchases of U.S. grain. In addition, in the face of record world supplies—for example, in corn and wheat—and weakening demand in 1982, price competition intensified; other exporters appear to have stepped up marketing efforts, offering favorable credit terms and export subsidies, while the appreciation of the dollar made U.S. products relatively more expensive. Other exports—a small but, in recent years, volatile category that includes reexports of foreign merchandise from the United States—declined $0.5 billion (12 percent).

Changes from the first quarter of 1980 to the fourth quarter of 1982 in the end-use categories of imports were more diverse than in exports; declines in some categories were almost offset by increases in others (chart 10). Petroleum and petroleum products were down $2.7 billion (34 percent), reflecting both the U.S. recessions and continuing efforts to conserve energy. (Because international trade in petroleum is largely denominated in dollars, the dollar's appreciation was not a factor.) The decline was in part a reponse to continued price increases. In 1979, OPEC initiated the second "oil price shock," and the average price per barrel was run up to $28.06 in the first quarter of 1980 and to $35.62 in the second quarter of 1981. Thereafter, with a worldwide glut of oil adding to competition among producers, prices fell, reaching $30.98 in the fourth quarter of 1982.

Over 1980–82, petroleum imports more than accounted for the decline in total imports. Excluding petroleum, imports were up $1.4 billion, or 2.0 percent. Two categories—capital goods, except autos, and consumer goods—continued uptrends, but with interruptions traceable to the U.S. recessions. Capital goods were up $2.2 billion (14 percent) and consumer

CHART 10

Merchandise Imports



U.S. Department of Commerce, Bureau of Economic Analysis 83-3-10 goods were up $1.1 billion (7 percent). In capital goods, electronic equipment and components and business equipment accounted for most of the increase. In consumer goods, both durable and nondurable goods registered the interruptions; a strengthening in nondurables after mid-1981 maintained the uptrend in the total.

The impact of the recessions was also evident in nonpetroleum industrial supplies and materials. With sharp drops in early 1980 and in 1982, this category declined $2.0 billion (11 percent). Iron and steel imports, after a decline in 1980, increased substantially through the first quarter of 1982, in part reflecting the enhanced competitiveness in the U.S. market of European iron and steel following the dollar's appreciation. Thereafter, imports were slowed by a dispute between the European Communities and the United States over subsidies.

Three end-use categories showed considerable quarterly irregularity, and the impact of general factors is hard to discern: Autos were down $1.1 billion (10 percent); foods, feeds, and beverages were up $0.6 billion (9 percent); and other imports—a category consisting largely of low-value shipments and U.S. goods returned—were up $0.7 billion (32 percent). The Japanese auto agreements, negotiated to hold Japanese imports at 1.68 million units for the year beginning Aprli 1, 1981 and subsequently extended for another year, influenced both the level and quarter-to-quarter movements. During 1982, fluctuations in auto imports from Canada reflected an increase in shipments of large cars, in response to a shift in U.S. demand; the second-quarter opening of a facility to build engines; and anticipation of a strike in September at the expiration of a labor agreement.

Factor income.—The $5.2 billion decline in the balance on factor income from the first quarter of 1980 to the fourth quarter of 1982 was more than accounted for by a $5.9 billion decline in exports, that is, receipts of income for factor services provided by U.S. residents (table 4). Within the period, the pattern of functuations of receipts and payments was similar, but with payments better maintained (chart 7).

Within factor income, the decline was in the balance on corporate profits, down $10.6 billion; the balance on interest was up $5.4 billion. As a result of these changes, a shift in the composition of the factor-income balance, which had been gradual in the last half of the 1970's, became pronounced. In the first quarter of 1980, the balance on interest accounted for 28 percent of the total, and by the fourth quarter of 1982, it accounted for 57 percent.

The relative strengthening of interest income points to the growing role of interest rates as one of the general determinants of the course of factor income. Levels of economic activity in the United States and abroad as well as changes in the value of the dollar were other general determinants. Further, developments in the petroleum industry significantly affected corporate profits and strong increases in outstanding claims and liabilities significantly affected interest income.

As noted earlier, the balance on factor income is the difference between GNP and gross domestic product. This relationship can be used to obtain an approximate measure of the effect on the rate of change in GNP of disproportionate changes in the part of national production originating in the rest of the world. As shown in column 5 of table 8, disproportionate changes in rest-of-the-world production in the fourth quarter of 1980 and in the first quarter of 1982 reduced the annual rates of growth of GNP 0.8 and 1.0 percentage points, respectively. In other quarters of 1980–82, the effect was smaller, sometimes reducing and sometimes increasing the rate of change in GNP. From the first quarter of 1980 to the fourth quarter of 1982, rest-of-the-world product increased the average annual rate of decline in GNP by approximately 0.1 percentage point.

In corporate profits, the decline in the balance from the first quarter of 1980 to the fourth quarter of 1982 was more than accounted for by a $12.7 billion decline in receipts (chart 11). Receipts were halved: From a high in late 1979 and in the first quarter of 1980 of almost $26 billion, they declined, with few interruptions, to $13.2 billion in the fourth quarter of 1982. The decline was in large part due to the slowing of economic activity, especially in 1980 and 1982, in countries where foreign affiliates are located. Petroleum affiliates, which account for about one-third of total receipts, were particularly hard hit. The decline in receipts from these af-

Table 4.—Factor Income in Constant Dollars

[Billions of 1972 dollars; seasonally adjusted at annual rates]

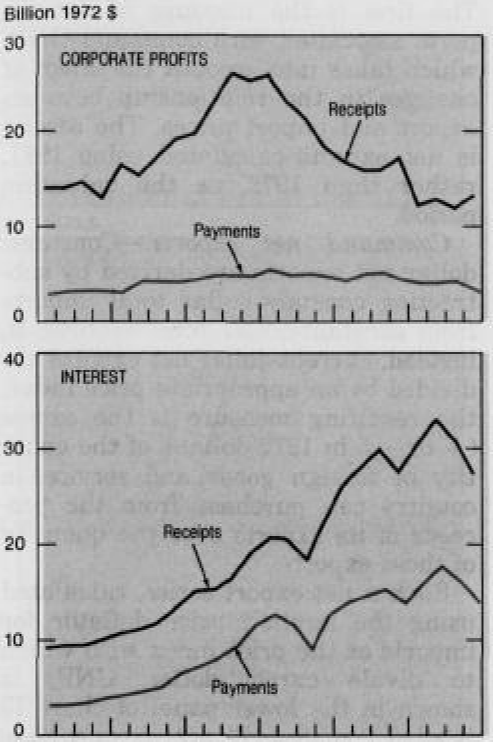
	Factor income, total			Corporate profits			Interest [1]		
	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports
1977: I	17.1	23.0	5.9	11.3	14.0	2.7	5.8	9.0	3.2
II	17.0	23.5	6.4	11.1	14.1	3.1	5.9	9.4	3.5
III	17.5	24.1	6.6	11.5	14.6	3.1	6.0	9.5	3.5
IV	16.0	23.2	7.2	9.8	13.0	3.2	6.2	10.2	4.0
1978: I	20.1	27.3	7.2	13.6	16.5	2.9	6.5	10.8	4.3
II	17.6	26.4	8.8	11.2	15.3	4.1	6.4	11.1	4.7
III	19.6	28.9	9.3	12.9	17.1	4.1	6.7	11.8	5.2
IV	22.2	32.8	10.6	15.2	19.2	4.0	7.0	13.6	6.6
1979: I	23.3	34.8	11.5	15.5	19.6	4.2	7.9	15.2	7.3
II	25.1	37.9	12.9	18.1	22.8	4.7	7.0	15.1	8.2
III	28.5	42.7	14.2	21.3	26.1	4.8	7.2	16.6	9.4
IV	28.2	44.5	16.3	20.7	25.3	4.6	7.5	19.2	11.7
1980: I	28.6	46.6	18.0	20.6	25.9	5.3	8.0	20.7	12.7
II	26.8	43.3	16.5	18.2	22.9	4.8	8.6	20.4	11.7
III	25.7	39.6	13.9	16.6	21.3	4.8	9.1	18.3	9.1
IV	23.4	40.9	17.5	13.6	18.3	4.7	9.8	22.6	12.8
1981: I	25.0	43.1	18.1	12.6	16.8	4.1	12.4	26.3	14.0
II	24.4	44.0	19.6	10.9	15.8	4.9	13.5	28.2	14.7
III	25.4	45.9	20.4	10.7	15.9	5.1	14.7	30.0	15.3
IV	26.7	44.8	18.1	12.3	17.1	4.8	14.4	27.7	13.3
1982: I	22.7	42.5	19.8	8.4	12.2	3.9	14.3	30.3	15.9
II	24.2	45.9	21.7	8.9	12.8	3.9	15.3	33.1	17.8
III	22.5	42.7	20.2	7.9	11.9	4.1	14.6	30.8	16.1
IV	23.4	40.7	17.3	10.0	13.2	3.2	13.4	27.5	14.1
Addendum: Change, 1980: I to 1982: IV	−5.2	−5.9	−.7	−10.6	−12.7	−2.1	5.4	6.8	1.4

1. Contains a small amount of compensation of employees.

NOTE.—Estimates of total factor income are from table 4.2 of the National Income and Product Accounts Tables. Estimates of corporate profits are derived by dividing rest-of-the-world corporate profits, from table 6.20B of the National Income and Product Accounts Tables, and exports and imports separately, from unpublished data, by the implicit price deflator for net domestic product. (That deflator can be found as the implicit price deflator for factor income in table 7.16 of the National Income and Product Accounts Tables; that shown for exports was used in the calculations.) Estimates of interest are derived as total factor income less corporate profits.

CHART 11

Factor Income, Receipts and Payments



Seasonally Adjusted at Anual Rates

Note.—Interest is derived as total factor income less corporate profits.

U.S. Department of Commerce, Bureau of Economic Analysis 83-3-11

filiates started from a high level in early 1980, when they were benefitting from the run-up in petroleum prices initiated by OPEC in 1979, and was large during 1980. After stabilization in 1981, a further weakening in 1982 reflected the softness in petroleum prices that was related to the oil glut.

Appreciation of the dollar also contributed to the decline in total receipts. Dollar appreciation has an effect on affiliate profits because earnings abroad, which, in general, firms calculate initially in foreign currencies, are reported to BEA in dollars. Thus, dollar appreciation against the currency of a country where the earnings originate generally lowers the dollar measure. This effect is a kind of capital gain (loss). Capital gains (losses) are definitionally excluded from NIPA measures and, as noted earlier, the reconciliation between the BPA's and the NIPA's includes an item to remove capital gains (losses) from income of foreign affiliates. Most gains (losses) of this kind are excluded from affiliate income by the reconciliation item, but a small part—those that cannot be separated statistically—remain. They may have significantly affected receipts from foreign affiliates over the 1980–82 period because of the sizable dollar appreciation. Finally, in 1980, receipts reflected a decline following a one-year jump caused by a change in the United Kingdom in the tax treatment of inventory profits.

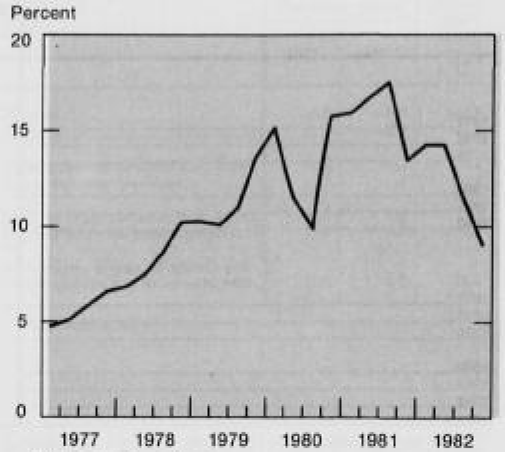
Payments of corporate profits declined $2.1 billion, from $5.3 billion in the first quarter of 1980 to $3.2 billion in the fourth quarter of 1982. Within this period, payments fell initially in response to the 1980 recession, recovered by mid-1981, and then fell in response to the 1981–82 recession. The gradual decontrol of U.S. petroleum prices beginning in the third quarter of 1979 and the OPEC price hikes bolstered earnings of petroleum affiliates in 1980 and, to a smaller extent, in 1981; payments by these affiliates are roughly one-third of total payments.

In interest, as noted earlier, the balance was up $5.4 billion from the first quarter of 1980 to the fourth quarter of 1982. Within the period, the balance grew steadily from $8.0 billion to $15.3 billion in the second quarter of 1982, then fell to $13.4 billion. The growth occurred as, during the quarterly fluctuations in which receipts and payments paralleled each other, receipts usually increased more and fell less (chart 11). The fluctuations follow closely the pattern of interest rates. This point is brought out by reference to chart 12, which shows the rate on U.S. 90-day certificates of deposit. This rate can serve as a representative rate for tracing fluctuations in yields because short-term, rather than long-term, instruments make up the preponderant share of both claims and liabilities, and because dollar-denominated instruments make up the preponderant share of both.

In addition to affecting fluctuations in interest receipts and payments, interest rates also affected their levels. The climb in interest rates to record highs in mid-1981—to 17½ percent (quarterly average) on the U.S. 90-day certificates of deposit—gave them an upward tilt. The level of outstanding

CHART 12

U.S. 90-Day Certificates of Deposit



Data: Federal Reserve Board.

U.S. Department of Commerce, Bureau of Economic Analysis 83-3-12

claims and liabilities also affected both the fluctuations and level, and contributed to the faster growth of receipts than payments. Both U.S. bank claims on and liabilities to foreigners—but especially the former—increased strongly almost throughout the period. Beginning in the fourth quarter of 1981, both were affected by the establishment of International Banking Facilities (IBF's). IBF's, which (as authorized by the Board of Governors of the Federal Reserve System) are exempt from reserve requirements and interest rate ceilings, conduct only international banking such as receiving foreign deposits and making foreign loans. As they were being established, shifts of claims and liabilities to the United States from foreign branches took place, and banking operations, which previously had taken place offshore, were handled by IBF's, adding significantly to the outstanding positions in claims and liabilities.

Other services.—The balance on other services was up $1.2 billion from the first quarter of 1980 to the fourth quarter of 1982, to $6.5 billion (table 1). The increase was almost all in exports, which fluctuated moderately around an uptrend, reaching $24.8 billion; imports fluctuated somewhat less around an $18 billion dollar level (chart 7).

Because deflation of the several heterogenous components that make up other services is carried out in detail

Table 5.—Other Services in Constant Dollars

[Billions of 1972 dollars]

	Total	U.S. Government transactions[1]	Travel expenditures	Passenger fares	Other transportation	Other
	Exports					
1977	21.5	6.4	4.4	1.0	4.8	5.9
1978	22.6	5.2	4.7	1.2	5.1	6.4
1979	22.4	3.9	5.0	1.6	5.7	6.2
1980	23.5	4.1	5.3	1.7	5.6	6.7
1981	24.2	4.4	5.8	1.8	5.7	6.5
1982	24.8	n.a.	n.a.	n.a.	n.a.	n.a.
	Imports					
1977	17.2	3.9	4.8	2.0	4.9	1.6
1978	18.3	4.3	4.9	2.2	5.1	1.8
1979	18.8	4.3	4.8	2.3	5.1	1.9
1980	17.6	4.3	4.5	2.3	4.4	1.9
1981	18.3	4.7	4.8	2.6	4.4	1.8
1982	19.0	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. Not available.

1. For exports, transfers under U.S. military agency sales contracts plus U.S. Government receipts for miscellaneous services. For imports, direct defense expenditures abroad plus U.S. Government payments for miscellaneous services.

only for annual estimates, with 1982 estimates not yet available, and because changes in most of the components are usually small over short time spans such as that being analyzed in this article, it is not possible to discuss other services in a manner comparable to other components of net exports.

A few points may be made, however (table 5). For exports: (1) U.S. Government transactions appear somewhat erratic, and changes are often traceable to special occurrences. The 1981 increase was concentrated in aircraft deliveries to Israel, Saudi Arabia, Japan, and NATO countries. In 1982, a sizable increase probably occurred, reflecting stepped-up deliveries of equipment to the Middle East, NATO, and Latin America. (2) Travel receipts are affected by exchange rates (those assumed to prevail for purposes of planning and those actually prevailing at the time of travel), which tended to make travel in the United States by foreigners increasingly expensive, and by levels of economic activity, which were depressed in most areas from which visitors are drawn.[9] Nevertheless, receipts were up in 1980 and 1981, but are likely to have shown a sizable decline in 1982 (current-dollar estimates are down 6 percent). A sharp drop in receipts from Mexico, an effect of the devaluation of the peso, was a major factor in contributing to the 1982 decline. (3) Passenger fare receipts also moved up through 1981. They tend to parallel travel expenditures, reflecting the same general factors. (4) Other transportation changed little. These receipts tend to move with merchandise trade—freight receipts with the volume of exports and port charges with the volume of imports. After little change in 1980–81, they probably declined in 1982.

For imports: (1) U.S. Government transactions were up in 1981 and probably in 1982, mainly due to higher off-base expenditures by military personnel and purchases of equipment. (2) Travel expenditures were unchanged. The effects of depressed economic activity and higher airfares appear to have offset the effects of the dollar's appreciation and, for most of the period, the stimulus to visit Canada and Mexico provided by the lower gasoline prices there than in the United States. (3) Passenger fares, after an increase in 1981, probably changed little in 1982. (4) Other transportation payments reflected the converse of the factors affecting receipts. In 1982, with both imports and exports down, a decline probably occurred.

9. Travel expenditures and passenger fares are reviewed intensively in the BPA context in articles that appear annually in the SURVEY. See, for example, "International Travel and Passenger Fares, 1981," SURVEY 62 (June 1982): 32–35 and 72.

Supplementary measures

Two supplementary measures of net exports are presented in what follows. The first is the measure of net exports associated with command GNP, which takes into account the effect of changes in the relationship between export and import prices. The second is net exports calculated using 1981, rather than 1972, as the valuation period.

Command net exports.—Constant-dollar net exports are derived by subtracting constant-dollar total imports from constant-dollar total exports. If, instead, current-dollar net exports are divided by an appropriate price index, the resulting measure is the excess (+ or −), in 1972 dollars, of the quantity of foreign goods and services a country can purchase from the proceeds of its exports over the quantity of those exports.

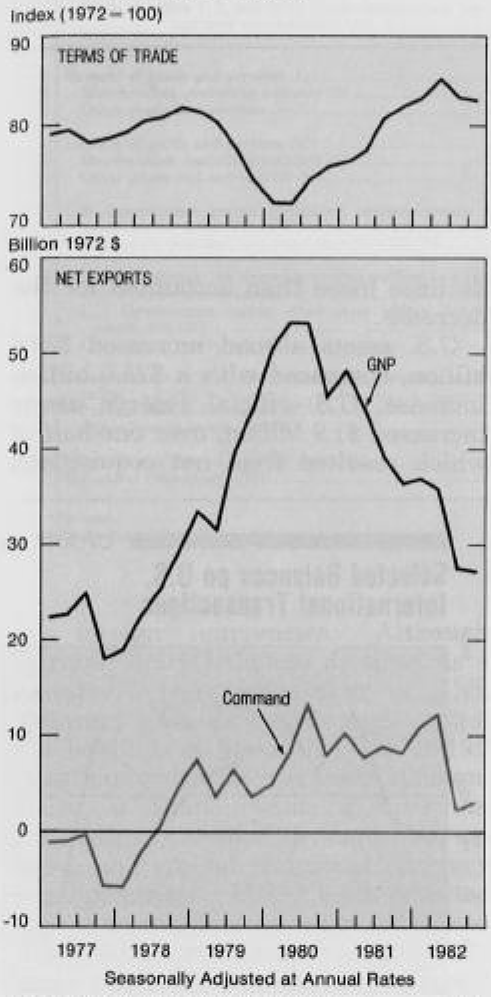
Such a net export series, calculated using the implicit price deflator for imports as the price index with which to divide current-dollar GNP, is shown in the lower panel of chart 13 labeled "command" net exports. (See also table 2 in the Reconciliation and Other Special Tables, on page 18 of this issue.) It is labeled "command" because it is one of a family of series—counterparts of the conventional production series—that measures the command over goods and services resulting from current production.[10] As shown in the chart, this series did not plummet over the 1980–82 period, as did the conventional net export series, labeled "GNP" net exports. Instead, from an irregular plateau in the $4 to $8 billion range in 1979 and the first quarter of 1980, the command series moved to a higher, irregular plateau in the $8 to $13 billion range that lasted through the second quarter of 1982, dropping substantially only in the third quarter, to $2.4 billion, and changing little in the fourth.

The source of the difference between the command and GNP series

10. The command series were introduced by Edward F. Denison in, "International Transactions in Measures of the Nation's Production," SURVEY 61 (May 1981): 17–22.

CHART 13

Terms of Trade and Net Exports of Goods and Services



U.S. Department of Commerce, Bureau of Economic Analysis

for net exports can be traced in the upper panel of chart 13. It shows the terms of trade, measured as the ratio of the implicit price deflator for exports to that for imports and indexed to 1972. After declining in 1979 and the first quarter of 1980, the index increased over the next two years from 72.2 to 85.0 in the second quarter of 1982, and then slipped to about 83.0. The improvement occurred as the import deflator, which had been rising more rapidly than the export deflator, rose less rapidly through the first quarter of 1981, and then declined through the second quarter of 1982. Through that quarter, the improvement was about 17 percent; if petroleum prices, rather than following their actual course, had followed the course of other import prices, the improvement would have been roughly three-fifths as much. The weakening in the terms of trade from the second quarter was more than accounted for by petroleum.

Recent valuation period.—For the constant-dollar estimates referred to so far, 1972 is the valuation period. BEA plans to supplement its regular constant-dollar estimates by approximating constant-dollar estimates valued in dollars of a recent year. The project has not yet been completed, but some preliminary calculations suggest the impact on the estimates of net exports of moving forward the valuation period to 1981. The impact on net exports could be expected to be of particular interest because of the large changes since 1972 in the prices and quantities of some components of exports and imports.

The average annual rates of change from the first quarter of 1980 to the fourth quarter of 1982 in table 6 show that imports on the 1981 valuation base declined much more than on the 1972 valuation base—3.6 percent compared with 0.1 percent—and exports on the 1981 base declined only slightly more—7.0 percent compared with 6.8 percent. Within imports, petroleum, which has a larger relative importance in imports on the 1981 base, fell by over 14 percent.

As noted earlier, gross national product differs from gross domestic purchases in that the product measure includes exports and excludes imports but the purchases measure includes imports and excludes exports. Accordingly, a comparison of their average annual rates of change on the two valuation bases can be used to quantify for net exports the effect of moving forward the valuation period. In 1972 dollars, for the period from the first quarter of 1980 to the fourth quarter of 1982, product declined at a rate of 0.5 percent and purchases increased at a rate of 0.2 percent. Thus, the decline in net exports reduced the average annual rate of change of product 0.7 percentage point relative to that of purchases. In 1981 dollars,

Table 6.—Average Annual Rates of Change in Selected Measures, 1980: I to 1982: IV

[Percent; based on constant dollars at seasonally adjusted annual rates]

	Valuation period		Difference: 1981 less 1972
	1972	1981*	
Exports	−6.8	−7.0	−0.2
Imports	−.1	−3.6	−3.5
Gross national product	−.5	−.6	−.1
Gross domestic purchases	.2	−.2	−.4
Implicit price deflator, exports	5.6	5.8	.2
Implicit price deflator, imports	.4	3.6	3.2
Addendum: Terms of trade—percent change not at annual rate	17.0	5.9	−11.1

*Approximations.

product and purchases declined at rates of 0.6 percent and 0.2 percent, respectively. Thus, in these dollars, the decline in net exports reduced the average annual rate of change of product 0.4 percentage points relative to that of purchases. The 0.3 percentage point difference in the amount by which net exports reduced the rate of change of product relative to purchases on the 1972 and 1981 valuation bases is the effect of moving forward the valuation period for net exports. Because moving the valuation period had little effect on the average annual rate of decline in exports and because the relative importance of exports in GNP increased only slightly from 1972 to 1981, it follows that most of the effect is due to imports—specifically, the larger decline in imports in 1981 dollars. The relative importance of imports in GNP increased substantially from 1972 to 1981.

The implicit price deflator for imports shows a much larger average annual rate of increase on the 1981 base than on the 1972 base and that for exports shows a similar rate of increase on both bases. With reasoning similar to that just used, the smaller increase in the terms of trade (from the first quarter of 1980 to the fourth quarter of 1982) on the 1981 base than on the 1972 base—5.9 percent (not an average annual rate) compared to 17.0—is the effect on the terms of trade of moving forward the valuation period.

401-010 0 - 83 - 4